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ABSTRACT

A study revealed that some of the art and craft supplies being used by most Washington, D.C. area public school districts (City of Alexandria, Arlington and Fairfax counties--Virginia; Montgomery and Prince George's counties--Maryland; and the District of Columbia) contained toxic ingredients which could cause serious, long-term damage, sterility, and birth defects. Children are particularly at risk from toxic substances because their bodies are small and still developing. They often do not understand the dangers associated with a product and they have a tendency to put things in their mouths. Ingredients of each product were reviewed by the Center for Occupational Hazards. Products were placed in one of three groups; (1) should not be used in public schools; (2) should be used only in secondary schools; and (3) safe for use in all public schools. Three recommendations were made: (1) art and craft materials should be required to be labeled properly; (2) certain toxic materials should be eliminated from the public schools; and (3) training sessions concerning toxic art supplies should be required. Appendices include: "Art materials that children under 12 should not use, with substitutes"; "Text of Oregon House Bill 2992"; and "Products authorized to bear the CP Certified Products Seal and the AP Approved Product Seal of the Certified Products and Certified Labeling Bureau of the Art and Craft Materials Institute, Inc." (BZ)

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Toxics in Art Supplies in Washington, DC Area Public Schools

April 1986

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U.S. PIRG is the national advocacy office for state PIRGs across the country.

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U.S. PIRG is a national, nonprofit consumer advocacy group that is the national lobbying office for a number of state PIRGs active throughout the country.

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INTRODUCTION

For students, artists and hobbyists, the pleasure of using art and craft supplies may quickly diminish once they know that this creative process can harm their health. In recent years, scientists have become aware of the dangers art supplies pose. Products frequently contain known or suspected toxic ingredients that go unnoticed by many users and supervisors. When toxins accumulate over time, health risks intensify. Children, frequent users of art and craft materials, possess the greatest risk when exposed to hazardous substances. Exposure to common art supplies such as rubber cement and spray paint may produce short term effects, such as dizziness, and long term hazards that may cause more serious ailments in later years.

This report analyzes the problem of toxics in art supplies in public schools in the Washington, D.C. metropolitan area. It is similar to reports released by Public Interest Research Groups (PIRGs) in California, Oregon, Massachusetts, and New York.

To conduct this study, U.S. PIRG obtained purchase order lists from various school districts in the D.C. area to determine what art and craft supplies are being used by children. Then, Material Safety Data Sheets, which list the ingredients in art supplies, were obtained for each product.

The results show that numerous hazardous substances have been ordered routinely for use by students in and around Washington, D.C.

For a variety of reasons, our results understate the problem of toxics in art supplies in D.C. area schools. First, by limiting our survey to public schools, we did not investigate the art materials used in private schools, day care centers, or nursery schools. The latest research conducted by the Center for Occupational Hazards and the New York City Department of Health revealed that of 81 different art materials found in surveyed day care and pre-school programs, only 20 products could be considered safe.

Second, we were able to obtain information only for purchasing done annually at the district level. Therefore, purchasing done during the year by individual teachers, which constitutes a substantial portion of products used in the classroom, is not included in our data.

Third, data necessary to categorize products by grade level was unavailable. However, according to the 1985 D.C. art curriculum guide and conversations with school officials, all elementary schools in the districts surveyed have used hazardous materials in many of their art projects. For example, many area elementary schools' art programs include ceramics projects which involve hazardous clays and glazes.

Fourth, and most important, over half of the art supply companies contacted did not provide the requested information regarding the ingredients in their products. These four factors suggest that further study of the problem of hazardous materials used by children in the Washington, DC area would reveal an even more alarming situation.

Although our research has uncovered a very serious situation regarding art products used by schoolchildren, the problem can be solved without unduly limiting the art curriculum in the schools.

In fact, two counties -- Montgomery and Prince George's -- have recently taken great strides to help eliminate toxic art supplies from their public schools without damaging their art programs. Our data indicates that most art products are safe to use if the proper precautions are taken. In addition, in most instances, safe substitutes are available for those products that are too hazardous for children to use in any manner. (See Appendix A.)

To protect children, art hobbyists and professionals from toxic art materials, we recommend the following measures:
(1) Art and craft products that contain hazardous substances should be required to bear labels with explanations of their hazards and instructions for safe use;
(2) Use of certain toxic supplies should be prohibited in schools;
(3) Training sessions about the hazards of art and craft products should be required for all teachers involved in art programs.

Laws requiring labeling and restricting the use of certain products in schools have been passed in Tennessee, Illinois, California and Oregon. Similar legislation is pending in Massachusetts, Florida and New York. (See Appendix B for Oregon's law.)

METHODOLOGY

To discover which art and craft materials are used in schools around Washington, D.C., U.S. PIRG researchers contacted art supply purchasing agents and school administrators in the city of Alexandria, Arlington County, Montgomery County, Fairfax County, Prince George's County, and the District of Columbia. The researchers requested bid lists and invoices for art supplies to be used in classrooms during the 1985-1986 school year. Since product brand names were often not recorded on school purchasing lists, some of the information received was not comprehensive. In addition, school officials in some areas were more cooperative than officials in other areas.

After compiling a list of products and manufacturers, researchers requested the distributors and manufacturers to send a Material Safety Data Sheet (MSDS) for each art product listed. The MSDS lists information necessary for a person to correctly and safely use a chemical product. The Department of Labor requires industries using a toxic substance to have these forms available for their workers.

MSDS's provide the name of a chemical product, a breakdown of the product's hazardous ingredients, physical information about the product (i.e., odor and appearance), fire and explosion hazards, acute health effects, and cleanup information. MSDS's also list special precautions to take before using the product and protective equipment to use with the product. (See Appendix C for a sample MSDS.) After a two month hiatus, many of the companies contacted complied with the written requests. However, some companies did not reply at all, even after several attempts were made to contact them. (See Appendix D.)

HEALTH HAZARDS OF ART SUPPLIES

In recent years, the problem of hazards in a wide range of art and craft materials has increased in importance among public health issues. However, the problem of hazardous compounds has been known for centuries. Some believe Francisco Goya suffered from lead poisoning because of the white lead pigments with which he achieved luminous mother-of-pearl tones on his canvass.

Currently, the majority of art materials are safe to use if certain precautions are taken to eliminate the potential chronic effects of hazardous substances. The following points stress the need for extreme caution:

1.) Cancer or other diseases may not develop for several years. The latency period of various carcinogens may be ten to 40 years. For example, the fatal effects of asbestos are not apparent until years after exposure. Such long-range disorders are classified as "chronic" hazards. Some toxic products also produce "acute" hazards. Acute hazards produce short term symptoms. Examples of acute hazards include acids which burn, solvent vapors that produce headaches, and cyanide which can kill. Products may also constitute both acute and chronic dangers. For example, rubber cement thinners can cause dizziness during use and irreversible nerve damage many years later.

2.) Toxins accumulate. We are constantly being exposed to a variety of toxic compounds in our daily lives. The cumulative effect of repeated exposure is rarely understood clearly. In order to minimize the risk posed by repeated exposure to these elements, it is nesessary to limit contact wherever possible.

3.) Toxins interact with each other. Exposure to different sources of a carcinogen is just as hazardous as comparable exposure to a single source. The American Lung Association warns that "although the insult from any one material might not be enough to cause disease, the multiplication of effects from many different hazards can sometimes be enough to overwhelm the resistance of a person and make it difficult or impossible to adjust or adapt." The "synergistic effect" of some chemicals, whereby their danger in combination is greater than the sum of danger posed by each one by itself, is another factor of concern. This effect is demonstrated this way: smokers have a lung cancer risk ten times greater than non smokers, while smokers also working with asbestos have a risk 92 times greater than those who do neither.

4.) Individuals react differently to toxins. Exposure to a given substance under a given set of conditions (such as the concentration inhaled in parts per million) will produce a variety of reactions in different people. This phenomenon is complicated by the number of chemicals to which each individual has been exposed.

5.) Carcinogens have no threshold value. No dose of cancer-causing agents is so low that one can be confident no ill effects will result.

ROUTES OF EXPOSURE TO HAZARDOUS SUBSTANCES

Hazardous materials enter the body by:

1.) inhalation
2.) ingestion
3.) absorption.

Inhalation of dusts from many art materials can irritate and even damage the lungs. For example, prolonged exposure to silica dust contained in clays may lead to the lung disease silicosis. Inhalation of certain gases, fumes and mists also irritates the breathing passages, causing swelling and difficulty in breathing. Inhalation of dangerous substances through the bloodstream also affects other body organs. For example, inhaling large quantities of lead can result in liver and kidney damage.

Ingestion of dusts and chemicals occurs by eating or drinking contaminated food products or through oral contact with tools used in art projects. This route applies especially to children because their curiosity and naivete can be dangerous when working with art products containing hazardous compounds. Products such as fruit scented markers inadvertently encourage children to taste, thus increasing the possibility of toxic exposure via ingestion.

Absorption of substances through the skin can result from accidental spilling, immersing hands in chemical solutions, and wearing contaminated clothing. Apart from the possibility of skin irritation at the point of contact, serious damage to organs may result.

CHILDREN AS A HIGH RISK GROUP

Because of a child's small body size, exposure to the same amount of a substance as an adult will result in a higher concentration of that substance in the child's body. Children are also more vulnerable to the adverse effects of toxic substances because their body systems are still developing. A child's high metabolic rate results in greater tendency to absorb toxic chemicals compared to adults. The inability of children to comprehend potential dangers combined with their tendency to put things in their mouths increase the problem of exposure to toxic substances in art supplies.

SPECIFIC HAZARDS

Although there are thousands of art and craft supplies containing toxic ingredients, the list below highlights a few hazardous substances and will serve as a guide to the section on specific products.

SOLVENTS: A solvent is an often poisonous, liquid organic chemical that dissolves solids. Rubber cement (and other adhesives), thinners, cleaners, varnishes, aerosol spray products, and permanent markers all contain solvents. This substance may cause skin disease, irritation of eyes, nose and throat, and can permanently damage internal organs and the nervous system. The carcinogenic properties of certain solvents are currently being studied.

Dangerous solvents are regularly included in many products. Toluene, which is responsible for the narcotic effects of sniffing glue, can be inhaled and absorbed through the skin, possibly causing internal organ damage. Hexane, commonly found in rubber cement, can cause temporary peripheral nerve damage and possibly permanent central nervous system damage.

LEAD: Exposure to small amounts of lead over time can cause permanent damage. The amount inhaled from breathing air laden with pottery dust - in addition to ingestion from putting fingers in one's mouth while working with glazes - can contribute to lead poisoning. Lead frits (fused materials used as a basis for glazes) and glazes can be dangerous while glazing, during firing, and on finished products that are used as food utensils. Manufacturers that term a glaze "safe" may not be referring to all three stages. Lead weakens the neuromuscular system, damages internal organs, and causes anemia, sterility, and birth defects.

SILICA: This substance is found in quartz and grog. Some clays contain up to 20 percent free silica. If silica is not chemically bonded with other elements it exists as free crystalline silica. In this form silica must be used cautiously. Inhalation may result in silicosis - small nodules scattered throughout the lungs. Extremely small silica dusts are most hazardous because they cannot be seen, float easily in air, and remain suspended for hours after larger visible dusts have settled. Exposure to silica occurs when mixing clay, glazing, preparing kiln shelves, or sanding glazed ware.

ASBESTOS: This is a generic term for a group of naturally occurring mineral silicates (any salt derived from silica) which are crystallized in the form of flexible fibers. Once these strong fibers are released in the air they may remain, often until inhaled, because as highly buoyant and almost indestructible particles they can float for an undetermined amount of time. Scientific studies have shown that asbestos can cause several diseases, including lung cancer, mesothelioma (a rare form of cancer that involves the thin membrane lining of the chest and abdomen), and asbestosis - characterized by the accumulation of inhaled asbestos fibers in the bronchioles (a small branch of the bronchus, leading to the trachea). Scar tissues

developing around the fibers stiffen the lungs gradually and affect their ability to respond to pressure changes. Symptoms of asbestosis include shortness of breath, coughing, and loss of weight.

PAINTS: In 1980, more than 14,000 people sought emergency treatment at hospitals for paint-related injuries, including inhalation and ingestion of paint and related products. Both the pigment and the materials in paints (except water colors and temperas) are cause for concern. Acrylic paints typically contain small amounts of ammonia and formaldehyde, which are irritants. Formaldehyde, moreover, has produced nasal cancer in animals. A significant number of acrylic and oil paints contain toxic pigments, including cadmium (a suspected carcinogen), chromium, manganese, mercury, and lead. Liver and kidney damage have been caused by these elements. While manufacturers argue that these constituents are not readily soluble, thus posing no danger, many questions remain about the chronic toxicity of non-water soluble paints. The safety of organic pigments is also questionable.

DYES: As with other materials, dyes are safer when dissolved in a water-based solution than in solvents. Even those with a water base, such as cold water dyes, are known to decrease the body's threshold to various stimulants, and the long-term health effects have not been adequately studied. Some cold water dyes have been known to cause asthma, and benzidine dyes are linked to bladder cancer.

RESULTS

Our study found that products containing chronically hazardous substances, including possible carcinogens, have been purchased regularly for use in schools throughout the Washington, D.C. metropolitan area.

To compile our results, U.S. PIRG asked Dr. Michael McCann and Ms. Monona Rossol of the Center for Occupational Hazards (COH) to review the MSDS's and classify the products according to degree of risk. The classifications are as follows:

Class I contains art materials which should not be used in public schools;

Class II contains art materials which should be used only in secondary schools; and

Class III contains art materials which are safe for use in all public schools.

We found the following products in use in D.C. area public schools:

Class I: 13 products
Class II: 34 products (See charts, pp. 13-14.)
Class III: Most class III products are labeled with the CP/AP seal of the Art and Craft Materials Institute. This classification system is explained on pp. 16-17. See Appendix E for a listing of CP/AP products.

Note: In 1985, the Montgomery County school system hired Dr. Michael McCann to examine their art supply bid lists for hazardous products. On October 3, 1985, the school system implemented his recommendations, and have since recalled and deleted from their bids a number of products and have sought substitutes for others.

As a result, the following listed products are no longer available for use in Montgomery County public schools:
Fixative spray; Nazdar products; oil paints; Ross rubber cement and rubber cement thinner; permanent markers; Kester soldering paste; solvent-based varnish; and shellac.

In addition, the following products are restricted from elementary school use:
Acrylic paints; Dylon dye; and lead-free glazes.

Officials in Prince George's County told our researchers that they too have taken certain toxic art supplies off of their purchasing lists for the new school year. The state of Maryland has announced that it plans to form a task force which will design guidelines for the safe purchase and use of art supplies in public schools throughout the state.

We applaud these responsible actions and we urge the other school districts to follow this lead in order to create hazard-free art programs for public school children throughout the Washington, DC area.

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CLASS I

These materials should not be used in elementary or secondary schools because they contain known or suspected carcinogens, chemicals that can cause adverse reproductive effects, and highly toxic chemicals requiring very expensive ventilation systems or respirators. Junior and Senior high school students should not be exposed to these art materials without extensive training, which usually does not take place in secondary schools. In fact, COH has found that teachers themselves often do not have the necessary training and experience to work safely with these materials.

1.) **Glazes:**

Arlington: Amaco high gloss glazes and Amaco liquid glazes.
Alexandria and Fairfax: Amaco gloss glazes

These glazes contain lead borosilicate, glasschips, and cadmium silicate stain. Lead-free glazes, which are also available from Amaco, should be used instead.

2.) **Sprays:**

Arlington: Orrlac spray paint enamel
DC: Krylon spray coating; Glossy spray paint enamel
Prince George's: Krylon spray enamel

Aerosol sprays contain propellants and solvents which are hazardous if inhaled. Although these solvents are a concern alone, the mist generated by aerosol sprays compounds the problem. Without effective means of removing the mist from the air, droplets can stay airborne for hours, increasing the chance of absorption in the lung tissue of children and teachers. The sprays mentioned above contain lead and glycol ethers, which pose reproductive hazards.

3.) **Naz-Dar Silk Screen Materials:**

Montgomery

The chemicals in pigments and large quantities of solvents pose hazards in silk screen products. Lead is also found in these materials although lead-free substitutes are available. Effects of overexposure to Naz-Dar poster ink include respiratory tract irritation, acute nervous system depression, unconsciousness or coma. Although the company has been asked repeatedly, Naz-Dar refuses to participate in the voluntary labeling program (see pages 16-17). Last year, Naz-Dar products were recalled from all art rooms in Montgomery County and as of March, 1986, Naz-Dar materials will no longer be purchased for use in Montgomery County public schools.

4.) **Rubber Cement:**

Alexandria and D.C.: Sanford's rubber cement
Montgomery: Ross rubber cement and Ross rubber cement thinner (95 percent hexane)

These rubber cements stand out as particularly hazardous because they contain n-hexane, which is responsible for chronic neuropathy, or permanent nerve damage. Safer solvents such as heptane are available.

5.) **Artists oil paints:**

Alexandria

Colors such as naples yellow, manganese blue, and flake everwhite contain lead and soluble barium salt. These substances can cause respiratory and nerve disorders and harm to a developing fetus.

6.) **Ball clays:**

Montgomery

This clay contains alumina silicates, which if inhaled can produce scarring of lung tissue. It should only be used with dust respirators and proper ventilation, and therefore is not appropriate for classroom use. These clays were removed from Montgomery County classrooms in October, 1985, and they are no longer available in that school system.

Class II

Art materials in this category can be used in secondary schools with proper precautions, but since they can contain toxic chemicals, they should not be allowed in elementary schools.

1.) **Permanent Markers:**

Arlington and Montgomery: Penn markers
D.C.: Eberhard Faber markettes
Alexandria, DC and Prince George's: Other permanent markers

All permanent (as opposed to water cc or) markers contain solvents that should not be used by young children. The markers named above contain n-propyl alcohol which is irritating to the eyes and mucous membrane, and may cause a depressant reaction.

2.) Dry form ceramic clays:

Alexandria and Fairfax: Amaco egyptian paste clay
Alexandria and DC: Amaco white art clay
DC: Amaco white stoneware clay, stoneware clay with grog, and porcelain clay

These clays must be mixed with water before they can be used. The nuisance dust from mixing these powders are a cause for concern in elementary schools. Amaco's MSDS for these products states that respirators should be warn when handling these clays. Moist clays are recommended for grades K-6.

3.) Lead-free glazes:

Alexandria, Arlington, D.C. and Fairfax: Amaco lead-free glazes, including crystaltex, gloss, textured, matte and liquid glazes.
Montgomery: Eagle colored powder glaze and Chaselle copper enamel glaze.

Although lead-free glazes are safer to use than leaded glazes, several of these glazes contain dangerous heavy metals, such as chrome, manganese, and vanadium.

4.) Rubber Cements:

DC: Best-test and Handy rubber cement
Montgomery: Carter's rubber cement

These rubber cements contain heptane, which is safer to use than hexane, but all solvents are sufficiently toxic to be excluded from elementary schools. Their flammability increases their risk.

5.) Adhesives:

Arlington: Welch-Anderson soldering paste flux
DC and Prince George's: Pritt glue stick
Montgomery: Kester soldering paste flux
Prince George's: Walther's Goo cement

Soldering paste flux contains proprietary mixtures which may be hazardous when inhaled. Pritt glue stick is labeled "practically nontoxic" and may be toxic to ingest or touch. Walther's Goo cement contains acetone, which may cause eye irritation, headaches, nausea and narcosis.

6.) **Paints:**

All school districts: Liquitex acrylic paints
Alexandria and Montgomery: Oil paints
Montgomery: Cal Western acrylic/vinyl paints

Many acrylic and oil paint colors are prepared with cadmium, a suspected carcinogen. Too many questions remain about the chronic toxicity of all acrylic and oil paints to permit their use by young children. The use of oil colors also requires the use of hazardous solvents to clean the artists' tools.

Cal Western paints contain acetate and formaldehyde and can be hazardous if inhaled or upon contact with skin. The MSDS recommends adequate ventilation, rubber gloves and chemical goggles when using these paints. In addition, the MSDS states that the product should be kept out of the reach of children.

7.) **Powder Form Dyes.**

Alexandria, Montgomery and Prince George's: Dylon dyes
Arlington: Fibrec dyes

The inhalation of airborne dust from these dyes may cause bronchial irritation and allergic respiratory reaction.

8.) **Plaster of Paris:**

Arlington and Fairfax

Nuisance dust is the problem. Children should not mix any powdered materials.

9.) **Turpentine, shellac and varnish:**

Arlington and Montgomery: Shellac
Alexandria, Arlington and Prince George's: Turpentine
Arlington and Prince George's: Shellac solvent
Montgomery: Varnish

Turpentine contains acetate and may be harmful if inhaled. Varnish and shellac contain alcohol solvents which may cause eye irritation, nausea, dizziness and headaches upon overexposure.

10.) **Thompson lead-free enamel:**

Fairfax

The borosilicate glass contained in this product poses a respiratory hazard.

11.) **Liver of Sulfur:**

Prince George's

Sulfides can be corrosive to skin and breathing passages. The regular use of sulfides often produces hydrogen sulfide gas which is extremely toxic.

12.) **Higgins drawing ink:**

Alexandria, Montgomery and Prince George's

This ink poses acute hazards because of its proprietary mixtures.

13.) **Fixative sprays:**

Montgomery and Prince George's

Aerosol sprays contain hazardous propellants and solvents which become more dangerous when combined with the mist from the spray.

CLASS 1 PRODUCTS 1/

(Should not be used in schools, grades K-12)

	Alexandria	Arlington	DC	Fairfax	Montgomery 2/	P.G. 3/
Amaco high gloss & liquid glazes		X				
Amaco gloss glazes	X			X		
Artists oil paints	X					
Glossy spray paint enamel			X			
Kentucky ball clay					X	
Krylon spray coating			X			
Krylon spray enamel						X
Naz-Dar silk screening materials					X	
Orrlac spray paint enamel		X				
Ross rubber cement					X	
Ross rubber cement thinner					X	
Sanford's rubber cement	X		X			

Footnotes for Class I and Class II Charts

1/ Based on available data, which is limited due to various factors (see page 1).

2/ The following products have been deleted from Montgomery's 1986-1987 bid: Nazdar products; tube oil paints; Ross rubber cement products, fixative spray; powder dyes; permanent markers; soldering paste; shellac; and turpentine.

The following are available only for grades 7-12: acrylic paints; Higgins ink; and lead-free glazes.

3/ Permanent markers have been deleted from Prince George's bid lists.

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CLASS II PRODUCTS 1/

(Should not be used in grades K-6
For grades 7-12, only use with proper safety precautions)

	Alexandria	Arlington	DC	Fairfax	Montgomery 2/	P.G. 3/
acrylic paints	X	X	X	X	X	X
Cat Western acrylic paints					X	
dry form clays	X		X	X		
fixative sprays					X	X
Higgins drawing ink	X				X	X
lead free glazes	X	X	X	X	X	X
liver of sulfur						X
oil paints	X				X	
permanent markers	X	X	X		X	X
plaster of paris		X		X		
powder form dyes	X	X			X	
Pritt glue stick			X			X
rubber cement			X		X	
shellac		X		X	X	X
soldering paste flux	X				X	
Thompson lead-free enamel				X		
turpentine		X			X	X
varnish					X	
Walther's goo cement						X

LABELING OF ART PRODUCTS

As this report demonstrates, children, hobbyists and professionals routinely use art and craft materials that pose severe health risks. A primary reason for this widespread use of hazardous materials is that most purchasers and users of art products are not aware of their potential dangers.

Labels that accompany art supplies are often incomplete, uninformative and misleading. Most consumers believe that these labels assure them of the product's safety; however, incomplete labels often omit both the extent of harm the product is capable of causing and clear instructions for proper use of the product.

The following four points illustrate the inadequacy of current labeling practices:

1.) No chronically hazardous information. Currently, products that bear a non-toxic label are materials that have been tested by the Consumer Product Safety Commission (CPSC) for acute toxicity only. The CPSC regulates the labeling of art and craft materials under the Federal Hazardous Substances Act (FHSA), which requires that the term non-toxic be applied to labels after the CPSC has administered single-dose acute exposure tests to laboratory animals. Although it is critical that acutely toxic substances be identified, such testing is not sufficient because many dangerous compounds will not cause immediate effects.

The single-dose acute exposure tests administered by the CPSC do not include the identification of chemicals which cause chronic hazards, such as chronic poisoning (requiring more than a single dose), cancer, allergies, reproductive system damage, or birth defects. In addition, these tests are performed on adult animals and are designed to detect acute hazards for adults and not for children.

2.) False reassurances. Particular statements that are used by the manufacturers of art and craft supplies may mislead consumers. For example, "Safe-Non-Toxic" does not necessarily mean that a product has been tested for toxicity. Many small companies have been known to apply non-toxic labels to products without ever having done the required testing. It is important for the consumer to remain skeptical when reading labels such as "Safe-Non-Toxic." Unfortunately, even asbestos could be legally labeled "non toxic" under existing regulations.

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3.) Missing Information. Finding a list of ingredients on art and craft products is a rarity. Even when labels specify the acute hazards (dizziness, nausea, headaches) associated with particular products, they infrequently, if ever, mention the names of the chemicals that are responsible for causing the symptoms. When a list of ingredients is absent, besides representing a general disservice to the consumer, a significant danger is posed to anyone who is using the product. For example, if a child is in need of medical treatment for ingestion of an art product, it is imperative that a poison control center or physician know immediately what the product contains; different chemicals call for different treatments. Without a list of ingredients the potential for tragedy occurring is obvious -- particularly since the manufacturer may have moved or gone out of business.

4.) Unhelpful Instructions. Instructions for the safe use of art and craft products are often inadequate. For example, the phrase "use with adequate ventilation" may actually create a hazard because users may think they are complying with it when in fact they are not. Anne Laddon, a silk screen artist who endured four years of illnesses and two miscarriages due to the solvents she was using, stated, "How was I to know that 'use with adequate ventilation' didn't mean near an open window? I discovered that I need 15 air changes an hour with the exhaust at my work table."

It should be mentioned, finally, that manufacturers sometimes respond to the absence of information about their products by calling attention to the Material Safety Data Sheets. Some manufacturers assert that any consumer can find out what a product contains just by requesting a data sheet. Unfortunately, these forms are not always that easy to obtain. And once obtained, they may be difficult to understand (see Appendix B). Therefore, even an assertive consumer or consumer group may be unable to discover what toxins are used in products for sale. Material Safety Data Sheets are not adequate substitutes for comprehensive labeling as a means of informing consumers.

VOLUNTARY LABELING PROGRAM

In the early 1980's, consumer groups in several states and nationally began to call for legislation to require comprehensive labeling of chronically hazardous products. As a result of this pressure, the art and craft industry moved to establish voluntary labeling standards. In March of 1983, the Art and Craft Materials Institute (ACMI), a trade association of approximately 64 art and craft products manufacturers as of February 1986, established a voluntary labeling program for art supplies that contain chronically toxic ingredients. The American Society for Testing and Materials developed the voluntary standard, which requires testing and review by a team of toxicologists, and labels which carry the following certification seals:

AP (Approved Product) means the product contains no materials in sufficient quantities to be toxic or injurious to humans or to cause acute or chronic health problems.

CP (Certified Product) means the product meets the AP criteria and certain quality requirements.

CL (Certified Labeling) means the product has been certified to be properly labeled in a program of toxicological evaluation by a medical expert. Health warning labels must accompany any CL certification. (Under this system, class I and class II products would bear a CL seal accompanied by warnings.)

The voluntary labeling program is not sufficient to protect users of art products for a number of reasons. First, many major art and craft manufacturers, such as the Nazdar Company, have chosen not to participate in the labeling program.

In addition, ACMI claims that, "In the very near future, we expect 75-95 percent of the fine art and ceramic materials to bear either the CP/AP seal or the CL conformance statement." Even if this were to happen, and ACMI has no written data to support this prediction, it could mean that as many as one in four art products would not bear labels regarding their dangers. Furthermore, ACMI admits that current compliance with their standard is much lower for art products involved in crafts, such as ceramics, silk screening, photography, sculpture enameling, plastics and stained glass.

Second, since the program is voluntary, there is no official agency that is responsible for monitoring or enforcing compliance, and in fact, no such monitoring or enforcement has taken place.

Third, manufacturers who do not participate in the labeling program may actually gain a market advantage over those manufacturers who do participate. A consumer with a choice between a product with warning statements on the package and one without will likely choose the unmarked package, assuming that no warning label implies that no warning is necessary.

Fourth, there is a genuine disincentive for manufacturers of hazardous art materials to label their products. A company that manufactures a cadmium-based paint or a spray adhesive containing methylene chloride may find it more profitable to refuse to participate in a labeling agreement rather than advertise its use of the chemical or change its product formulation.

Finally, the fundamental problem with the voluntary labeling program is that it is voluntary. According to Dr. Michael McCann, "In areas of health, it should not be up to a company to decide whether or not it wants to put a warning label on a product."

RECOMMENDATIONS

The purpose of our study is not to accuse teachers or art directors of irresponsibility, but to encourage the elimination of toxic materials from school districts by educating school officials, parents and teachers about the dangers in many art and craft supplies. We hope that school districts in the Washington, D.C. area and across the country will use this and other available information, as Montgomery County has done, to develop and enforce strict comprehensive standards for art and craft products that are used by children in schools. In addition, we support the following reforms:

1.) Art and Craft Materials Should be Required to be Properly Labeled.

All art and craft materials containing carcinogens, suspected carcinogens and/or chronically toxic substances should be required to bear a label specifying which of these risks are present, instructions for safe use and a statement describing the particular hazard involved (e.g., dust harmful if inhaled).

Four states, California, Oregon, Tennessee, and Illinois, have passed labeling laws. Similar legislation has been proposed in Florida, Massachusetts and New York. We support more such state laws, and a national labeling law to provide minimum standards nationwide.

2.) Certain Toxic Materials Should be Eliminated from the Public Schools

Even when properly labeled, some art products pose a threat to the health and safety of school children. We support legislation similar to the four state laws mentioned above which would remove certain hazardous products from public schools.

Such legislation should prohibit school districts from purchasing products containing toxic, carcinogenic and chronically toxic substances for use in grades K-6. In grades 7-12, the law should allow the purchase of such products only if they bear a label containing a list of hazardous ingredients, the potential health effects and instructions for safe use.

To encourage uniform standards in all schools in the state, lists of hazardous art products should be available to pre-schools, day care centers, primary and secondary independent schools, including art schools, with the recommendation that similar action be taken.

Absent such legislation, art directors, superintendents, purchasing agents, and teachers should immediately begin scrutinizing their orders for toxic products, demanding MSDS's and consulting experts. A list of art and craft products that present clear hazards should be compiled and distributed to all school districts, with the instructions that no item mentioned may be ordered and that existing supplies must be disposed of as soon as possible. Art teachers and school officials should compile (or be supplied with) information concerning which safe products may be ordered to replace the items that have been prohibited. (For many of the products listed in this report, safer substitutes are available. See Appendix A).

3.) Training Sessions Concerning Toxic Art Supplies Should Be Required

Training sessions about the hazards of art and craft products should be required for all teachers involved in art programs. These sessions should provide instructions regarding the problems of inadequate ventilation, improper handling of products, and safer substitutes for hazardous products. School districts should make these courses available, utilizing the resources and expertise from reliable experts.

4.) For More Information

The Center for Occupational Hazards provides the public with an Art Hazards Information Center that answers written and telephone questions pertaining to the dangers associated with art and craft products. The Center suggests the appropriate precautions that need to be taken with the use of all types of art and craft products and they also have available an abundance of literature concerning art and craft products. Contact:

Dr. Michael McCann or
Ms. Monona Rossol
Center for Occupational Hazards
5 Beekman Street
New York, N.Y. 10038
(212)227-6220

CONCLUSION

Many art materials contain toxic ingredients which can cause serious, long-term disorders such as cancer, organ and nervous system damage, sterility, and birth defects. Children are particularly at risk from toxic substances because children's bodies are small, their bodies are still developing, they often do not understand the dangers associated with a product, and they have a tendency to put things in their mouths. A survey of the art and craft supplies being used by public schools in the Washington, D.C. area reveals that in most districts, schoolchildren are being routinely exposed to chronically hazardous substances. In order to protect children, art hobbyists and professionals, the government should require comprehensive labeling regarding the hazards of art products, and should ban certain art and craft materials from schools.

APPENDIX A

Art materials that children under 12 should not use, with substitutes:

1) **Clay in dry form.** The dry powder contains silica which is easily inhaled and may cause silicosis.
Substitute: Clay is safe in wet form only (wet clay cannot be inhaled).

2) **Leaded and lead-free glazes or frits.**
Substitute: Use poster paints instead of glazes.

3) **Solvents** (e.g., turpentine, benzene, toluene, rubber cement and its thinner).
Substitute: Use water-based paints and other materials.

4) **Cold water dyes or commercial dyes.**
Substitute: Use vegetable dyes, onionskins, etc..

5) **Permanent markers** which may contain toluene or other toxic solvents.
Substitute: Use only water-based markers.

6) **Some instant paper maches** may contain asbestos fibers or lead from pigments in colored printing inks.
Substitute: Make paper mache from black and white newspaper and library or white paste.

7) **Aerosol sprays.**
Substitute: Use brushes and water-based paints in splatter techniques.

8) **Powdered tempera colors.** (Their dust may contain toxic pigments).
Substitute: Use only liquid colors or the teacher can pre-mix the pigments.

9) **Pastels that create dust.**
Substitute: Use crayons or cra-pas which are oil-based.

10) **All photographic chemicals.**
Substitute: Use blueprint paper and make sun grams.

11) **Lead solder and stained glass.**
Substitute: Use colored cellophane and black paper to simulate lead.

12) **Epoxy instant glues** or other solvent-based glues.
Substitute: Use water-based white glues or library paste.

13) **Solvent based silk screen** and other printing inks.
Substitute: Use paper stencils and water-based inks.

14) **Silica sand** for moulds.
Substitute: Use olivine sand.

63rd OREGON LEGISLATIVE ASSEMBLY -1985 Regular Session

A-Engrossed

House Bill 2992

Ordered by the Speaker May 14
Including House Amendments dated May 14

Sponsored by COMMITTEE ON CONSUMER AND BUSINESS AFFAIRS (at the request of OSPIRG)

SUMMARY

The following summary is not prepared by the sponsors of the measure and is not a part of the body thereof subject to consideration by the Legislative Assembly. It is an editor's brief statement of the essential features of the measure.

Requires art or craft materials containing certain toxic substances causing chronic illness, as defined, be labeled, as specified. **Excludes retail sellers. Prescribes maximum $1,000 penalty for violation.**

Bans use of art supplies containing toxins from use in kindergarten through sixth grade.

Effective January 1, 1986.

A BILL FOR AN ACT

Relating to art or craft materials; and prescribing an effective date.

Be It Enacted by the People of the State of Oregon:

SECTION 1. As used in this Act:

(1) "Art or craft material" means any raw or processed material or manufactured product marketed or being represented by the manufacturer, repackager or principal importer as being suitable for use in any phase of the creation of any work of visual or graphic art of any medium. "Art or craft material" does not include economic poisons subject to the Federal Insecticide, Fungicide and Rodenticide Act (61 Stats. 163) or drugs, devices or cosmetics, which are subject to the Federal Food, Drug and Cosmetics Act (52 Stats. 1040).

(2) "Division" means the Health Division of the Department of Human Resources.

(3) "Human carcinogen" means any substance listed as a human carcinogen by the International Agency for Research on Cancer.

(4) "Medium" includes, but is not limited to, paintings, drawings, prints, sculpture, ceramics, enamels, jewelry, stained glass, plastic sculpture, photographs and leather and textile goods.

(5) "Potential human carcinogen" means one of the following:

(a) Any substance which does not meet the definition of human carcinogen, but for which there exists sufficient evidence of carcinogenicity in animals, as determined by the International Agency for Research on Cancer.

(b) Any chemical shown to be changed by the human body into a human carcinogen.

(6) "Toxic substance causing chronic illness" means any of the following:

(a) Human carcinogens.

(b) Potential human carcinogens.

(c) Any substance included in the list of hazardous substances prepared by the Accident Prevention Division of the Workers' Compensation Department pursuant to the Hazard Communication Rule, Division 155, notwithstanding exemptions made for substances on the list which are used in particular forms, circumstances or

NOTE: Matter in **bold face** in an amended section is new; matter [*italic and bracketed*] is existing law to be omitted.

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concentrations, if the health hazard presented by the substance is not the subject of label statements required by federal law.

SECTION 2. The Legislative Assembly:

(1) Finds and declares that there exists a significant danger to the public health and safety from exposure to art or craft material which contains toxic chemicals. This health risk threatens not only professional artists and craftspersons, but art teachers, students at every educational level, hobbyists and children. Toxic substances may be employed during the course and scope of creating art or craft objects of all varieties.

(2) Finds and declares that present labeling of ingredients and hazards of art or craft material is insufficient to adequately protect the consumers of this state from chronic adverse health effects. Because many persons do not know what toxic chemical substances they work with, proper precautionary actions cannot be taken. Disclosure of toxic ingredients, their possible adverse effects on health, and instructions for safe handling, will substantially minimize unnecessary exposure to excessive risk.

(3) Finds and declares that it is consistent to impose upon those who manufacture, repackage and distribute art or craft material a duty to convey to consumers information about the potential health hazards of the products they manufacture.

(4) Finds and declares that school children are not sufficiently protected by present health laws insofar as materials which may be seriously harmful are not so labeled and therefore children are not properly warned as to the dangers inherent in the use of these materials.

(5) Intends by this Act to insure that consumers be provided information concerning the nature of the toxic substances with which they are working and the known and suspected health hazards of these substances and to insure the uniformity of labeling standards, so that materials with similar hazards also have essentially similar labels and to insure that elementary school children are protected by prohibiting the sale of those toxic substances to schools and school districts for use in kindergarten and grades 1 through 6.

SECTION 3. For the purposes of this Act, an art or craft material shall be presumed to contain an ingredient which is a toxic substance causing chronic illness if the ingredient, whether an intentional ingredient or an impurity, is one percent or more by weight of the mixture or product, or if the division determines that the toxic or carcinogenic properties of the art or craft material are such that labeling is necessary for the adequate protection of the public health and safety.

SECTION 4. No person shall distribute any art or craft material containing toxic substances causing chronic illness on which the person:

(1) Has failed to affix a conspicuous label containing the signal word "WARNING," to alert users of potential adverse health effects.

(2) Has failed to affix a conspicuous label warning of the health related dangers of the art or craft material.

(a) If the product contains a human carcinogen, the warning shall contain the statement: "CANCER HAZARD! Overexposure may create cancer risk."

(b) If the product contains a potential human carcinogen and does not contain a human carcinogen, the warning shall contain the statement: "POSSIBLE CANCER HAZARD! Overexposure might create cancer risk."

(c) If the product contains a toxic substance causing chronic illness, the warning shall contain, but not be limited to, the following statement or statements where applicable:

(A) "May cause sterility or damage to reproductive organs."

(B) "May cause birth defects or harm to developing fetus."

(C) "May be excreted in human milk causing harm to nursing infant."

(D) "May cause central nervous system depression or injury."

(E) "May cause numbness or weakness in the extremities."

(F) "Overexposure may cause damage to (specify organ)."

(G) "Heating above (specify degrees) may cause hazardous decomposition products."

(d) If a product contains more than one chronically toxic substance, or if a single substance can cause more than one chronic health effect, the required statements may be combined into one warning statement.

(3) Has failed to affix on the label a list of ingredients which are toxic substances causing chronic illness.

(4) Has failed to affix on the label a statement or statements of safe use and storage instructions, conforming to the following list. The label shall contain, but not be limited to, as many of the following risk statements as are applicable:

(a) "Keep out of reach of children."

(b) "When using, do not eat, drink or smoke."

(c) "Wash hands after use and before eating, drinking or smoking."

(d) "Keep container tightly closed."

(e) "Store in well ventilated area."

(f) "Avoid contact with skin."

(g) "Wear protective clothing (specify type)."

(h) "Wear National Institute of Occupational Health and Safety (NIOSH) certified masks for dusts, mists or fumes."

(i) "Wear NIOSH certified respirator with appropriate cartridge for (specify type)."

(j) "Wear NIOSH certified supplied air respirator."

(k) "Use window exhaust fan to remove vapors and assure adequate ventilation (specify explosion proof if necessary)."

(L) "Use local exhaust hood (specify type)."

(m) "Do not heat above (specify degrees) without adequate ventilation."

(n) "Do not use or mix with (specify material)."

(5) Has failed to affix on the label a statement on where to obtain more information, such as "call your local poison control center for more health information."

(6) Has failed to affix on the label the name and address of the manufacturer.

(7)(a) If the information listed in paragraphs (a) to (n) of subsection (4) of this section cannot fit on the package label, a package insert shall be required to convey all the necessary information to the consumer. In this event, the label shall contain a statement to refer to the package insert, such as "CAUTION: See package insert before use." The language on this insert shall be nontechnical and nonpromotional in tone and content.

(b) For purposes of this subsection, "package insert" means a display of written, printed or graphic matter upon a leaflet or suitable material accompanying the art supply

(8) The requirements set forth in subsections (1) to (7) of this section shall not be considered to be complied with unless the required words, statements or other information appear on the outside container or wrapper, or on a package insert which is easily legible through the outside container or wrapper and is painted in a color in contrast with the product or the package containing the product.

(9) The department may exempt a material from full compliance with this Act. In considering this exemption, the division shall take into consideration the potential for reasonably forseeable misuse of a material by a child.

(10) If an art or craft material complies with labeling standards D-4236 of the American Society for Testing and Materials (ASTM), the material complies with the provisions of this Act, unless the division determines that the label on an art or craft material does not satisfy the purposes of this Act.

SECTION 5. (1) For the 1986-1987 academic year and for each academic year thereafter, no art or craft material which is considered by the Health Division of the Department of Human Resources to contain a toxic substance causing chronic illness, as defined in section 1 of this Act, shall be ordered or purchased by any school or school district for use by students in kindergarten and grades 1 through 6.

(2) Commencing June 1, 1986, any substance which is defined in section 1 of this Act as a toxic substance causing chronic illness shall not be purchased or ordered by a school or school district for use by students in grades 7 through 12 unless it meets the labeling standards specified in section 4 of this Act.

(3) If the Health Division finds that, because the chronically toxic, carcinogenic or radioactive substances contained in an art or craft material cannot be ingested, inhaled or otherwise absorbed into the body during any reasonably foreseeable use of the material in a way that could pose a potential health risk, the division may exempt the material from these requirements to the extent it determines to be consistent with adequate protection of the public health and safety.

SECTION 6. By June 1, 1986, the Health Division shall develop a list of those art or craft materials which can be purchased or ordered for use in kindergarten and in grades 1 through 6 and a list of materials which, while not currently sold or manufactured, may be reasonably suspected to still exist at some schools. In developing the lists, the division shall consult with manufacturers of art supplies, artists' groups, health organizations and toxicologists as the division considers appropriate.

SECTION 7. (1) The Superintendent of Public Instruction shall distribute the lists to all school districts and shall make the lists available to preschools, child care centers and other businesses and organizations which involve children in the use of art or craft materials.

(2) The superintendent shall inform school districts of the requirements of this Act and shall encourage school districts to dispose of art or craft materials which may contain human carcinogens, potential human carcinogens or toxic substances causing chronic illness, but which are not affected by this Act.

SECTION 8. (1) The manufacturer of any art or craft material sold, distributed, offered for sale or exposed for sale in this state shall supply to a national poison control network approved by the Assistant Director for Health of the Health Division the formulation information required by that network for dissemination to poison control centers. Failure to file formulation information with an approved poison control network is a violation of this Act.

(2) The requirements set forth in section 4 of this Act shall not be considered to be complied with unless all required words, statements or other information accompany art or craft materials from manufacturer to consumer, not excluding any distributor, packager or repackager.

SECTION 9. Violation of section 4 or 8 of this Act is punishable by a civil penalty of not to exceed $1,000 that may be imposed and collected in the manner prescribed in ORS 441.705 to 441.745.

SECTION 10. Sections 1 to 9 of this Act take effect January 1, 1986.

APPENDIX C

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MATERIAL SAFETY DATA SHEET
ESSENTIALLY SIMILAR TO OSHA-20 FORM
DATE OF PREP.11/08/84

SECTION I

MANUFACTURER'S NAME: NAZ-DAR COMPANY
STREET ADDRESS: 1087 N. NORTH BRANCH ST.

CITY,STATE AND ZIP CODE: CHICAGO IL 60622

EMERGENCY TELEPHONE NUMBER: DAY: 312-943-8338 NIGHT: 312-943-8338
INFORMATION TELEPHONE NUMBER: 312-943-8338

MANUFACTURER'S CODE IDENTIFICATION: 5513

PRODUCT CLASS: ETHYL CELLULOSE LACQUER

TRADE NAME: [redacted]

PRODUCT CODE: 5513 PRODUCT GROUP: 55

SECTION II---HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	OCCUPATIONAL EXPOSURE LIMITS	VAPOR PRESSURE	TOXICITY DATA
RULE 66 MINERAL SPIRITS (ALIPHATIC PETROLEUM DISTILLATE)	29.00	200 PPM	@20 DEG. C 1	
HI-SOL 10 (AROMATIC PETROLEUM DISTILLATE)	12.00	100 PPM	@20 DEG. C 2	

SECTION III---PHYSICAL DATA

BOILING RANGE: 315 DEG. F - 385 DEG. F VAPOR DENSITY: HEAVIER,THAN AIR

EVAPORATION RATE: SLOWER,THAN ETHER PERCENT VOLATILE BY VOLUME: 57.00
WEIGHT PER GALLON: 9.35 POUNDS

SECTION IV---FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION:
OSHA: COMBUSTIBLE LIQUID CLASS II
DOT : COMBUSTIBLE LIQUID

FLASH POINT: 105 DEG. F TCC

LOWER EXPLOSIVE LEVEL: 1

EXTINGUISHING MEDIA:
FOAM CO2 DRY CHEMICAL

UNUSUAL FIRE AND EXPLOSION HAZARDS:
KEEP CONTAINERS TIGHTLY CLOSED. ISOLATE FROM HEAT, ELECTRICAL EQUIPMENT, SPARKS AND OPEN FLAME. CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT. DO NOT APPLY TO HOT SURFACES. WATER SPRAY MAY BE INEFFECTIVE. WATER MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT PRESSURE BUILDUP AND POSSIBLE AUTOIGNITION OR EXPLOSION WHEN EXPOSED TO EXTREME HEAT. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE

SECTION V---HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:
INHALATION: ANESTHETIC. IRRITATION OF THE RESPIRATORY TRACT OR ACUTE NERVOUS SYSTEM DEPRESSION CHARACTERIZED BY HEADACHE, DIZZINESS, STAGGERING GAIT, CONFUSION, UNCONSCIOUSNESS OR COMA.
SKIN OR EYE CONTACT: PRIMARY IRRITATION

EMERGENCY AND FIRST AID PROCEDURES:
FUMES: REMOVE FROM EXPOSURE, RESTORE BREATHING. KEEP WARM AND QUIET. NOTIFY A PHYSICIAN. SPLASH (EYES): FLUSH IMMEDIATELY WITH COPIOUS QUANTITIES OF RUNNING WATER FOR AT LEAST 15 MINUTES. TAKE TO A PHYSICIAN FOR DEFINITIVE MEDICAL TREATMENT. SPLASH (SKIN): REMOVE WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. DO NOT INDUCE VOMITING IF SWALLOWED.

SECTION VI---REACTIVITY DATA

CONDITIONS TO AVOID:
N/A

INCOMPATIBILITY (WITH MATERIALS):
N/A

HAZARDOUS DECOMPOSITION PRODUCTS:
MAY PRODUCE HAZARDOUS FUMES WHEN HEATED TO DECOMPOSITION AS IN WELDING. FUMES MAY CONTAIN CARBON MONOXIDE AND OXIDES OF NITROGEN.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

SECTION VII---SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
REMOVE ALL SOURCES OF IGNITION (FLAMES, HOT SURFACES, AND ELECTRICAL, STATIC OR FRICTIONAL SPARKS). AVOID BREATHING VAPORS. VENTILATE AREA. REMOVE WITH INERT, ABSORBENT AND NON-SPARKING TOOLS.

WASTE DISPOSAL METHOD:
DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. DO NOT INCINERATE CLOSED CONTAINERS.

SECTION VIII---SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
IN OUTDOOR OR OPEN AREAS, USE BUREAU OF MINES APPROVED MECHANICAL FILTER RESPIRATOR TO REMOVE SOLID AIRBORNE PARTICLES OF OVERSPRAY DURING SPRAY APPLICATIONS. IN RESTRICTED VENTILATION AREAS, USE BUREAU OF MINES APPROVED CHEMICAL-MECHANICAL FILTERS DESIGNED TO REMOVE A COMBINATION OF PARTICULATE AND GAS AND VAPORS. IN CONFINED AREAS, USE BUREAU OF MINES APPROVED AIR LINE TYPE RESPIRATORS OR HOODS.

VENTILATION:
PROVIDE GENERAL DILUTION OR LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP TLV OF MOST HAZARDOUS INGREDIENT IN SECTION II BELOW ACCEPTABLE LIMIT, LEL IN SECTION IV BELOW STATED LIMIT AND TO REMOVE DECOMPOSITION PRODUCTS DURING WELDING OR FLAME CUTTING ON SURFACES COATED WITH THIS PRODUCT.

PROTECTIVE GLOVES:
REQUIRED FOR PROLONGED OR REPEATED CONTACT.

EYE PROTECTION:
USE SAFETY EYEWEAR DESIGNED TO PROTECT AGAINST SPLASH OF LIQUIDS.

OTHER PROTECTION:
PREVENT PROLONGED SKIN CONTACT WITH CONTAMINATED CLOTHING.

SECTION IX---SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
DO NOT STORE ABOVE 120 DEG. F. STORE LARGE QUANTITIES IN BUILDINGS DESIGNED FOR STORAGE OF NFPA CLASS II COMBUSTIBLE LIQUIDS.

OTHER PRECAUTIONS:
DO NOT TAKE INTERNALLY. CONTAINERS SHOULD BE GROUNDED WHEN POURING. AVOID FREE FALL OF LIQUIDS IN EXCESS OF A FEW INCHES. DO NOT FLAME CUT, BRAZE OR WELD WITHOUT U.S. BUREAU OF MINES APPROVED RESPIRATOR OR APPROPRIATE VENTILATION.

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED UPON DATA BELIEVED TO BE CORRECT. HOWEVER, NO GUARANTEE OR WARRANTY OF ANY KIND EXPRESSED OR IMPLIED IS MADE WITH RESPECT TO THE INFORMATION CONTAINED HEREIN.

APPENDIX D

MANUFACTURERS CONTACTED FOR MSDS FORMS

* American Art Clay Company, Inc.

** Binney & Smith Inc. (no response)

** Brodhead-Garrett Co. (responded by requesting purchase order number or invoice)

* Chaselle Inc.

** Dick Blick East (no response)

* Eagle Ceramics

* J.L. Hammett

** Prang/Dixon Ticonderoga (sent a list of CP/AP products)

** Rich Art (referred us to the "CP Institute")

* Sargent Art

* Sax Arts and Crafts

** Seeley's Ceramics Service (no response)

* Speedball/Hunt Manufacturing Company

* - Provided requested information.

** - Did not provide requested information.

APPENDIX E

PRODUCTS AUTHORIZED TO BEAR THE CP CERTIFIED PRODUCTS SEAL

AND THE AP APPROVED PRODUCT SEAL OF

THE CERTIFIED PRODUCTS AND CERTIFIED LABELING BUREAU OF

THE ART AND CRAFT MATERIALS INSTITUTE, INC.
(formerly The Crayon, Water Color and Craft Institute, Inc.)
715 Boylston Street, Boston, MA 02116 (617) 266-6800

MEETS PERFORMANCE STANDARDS

FEBRUARY 1986

Products bearing the CP Certified Products Seal or the AP Approved Product Seal of The Art and Craft Materials Institute, Inc. are certified in a program of toxicological evaluation by a medical expert, subject to the review by the Institute's Toxicological Advisory Board, to contain no materials in sufficient quantities to be toxic or injurious to humans or to cause acute or chronic health problems. In addition, products bearing the CP Seal meet specific requirements of material, workmanship, working qualities and color described in the appropriate Product Standard issued by The Art and Craft Materials Institute, Inc. or other recognized standards organizations. **Purchase products that bear the Institute's CP or AP Seals or the CL Health Label Seal!**

PRODUCTS AND MANUFACTURERS	BRAND NAMES	CP SEAL	AP SEAL
ADHESIVES			
Polymer			
Binney & Smith	CRAYOLA ART & CRAFT GLUE	*	
Ceramichrome, Inc.	ED'S GLUE		*
Rich Art Color Co.	RICH GLU WHITE GLUE		*
School Paste			
Binney & Smith	CRAYOLA WHITE	*	
Dixon Ticonderoga	HOLDTU		*
Dixon Ticonderoga	STIXIT	*	
Rich Art Color Co.	RICH ART SHCOOL PASTE		*
Glues			
Dixon Ticonderoga	PRANG ROLL-ON	*	
A. Ludwig Klein&Son	#53 CEMENTING LIQUID		*
A. Ludwig Klein&Son	DUSSELDORF THICK CEMENT		*
AIRBRUSH COLORS & MEDIUMS			
Badger Airbrush	AEROPAQUE		*
Badger Airbrush	AEROPAQUE GLOSSY VARNISH		*
Badger Airbrush	AEROPAQUE MATTE VARNISH		*
Badger Airbrush	AEROPAQUE PEARLS		*
Badger Airbrush	AIRTEX		*
Chartpak	AQUA DYE		*
BLOCK PRINTING INKS & MEDIUMS			
Oil Base			
Graphic Chemical&Ink	GRAPHIC		*
Hunt Manufacturing	SPEEDBALL		*
Hunt Manufacturing	SPEEDBALL MEDIUM		*
Water Soluble			
Dick Blick Co.	DICK BLICK		*
Dixon Ticonderoga	PRANG	*	
Graphic Chemical&Ink	GRAPHIC		*
Hunt Manufacturing	SPEEDBALL		*
Hunt Manufacturing	SPEEDBALL DRIER		*
Hunt Manufacturing	SPEEDBALL REDUCER #1		*
Hunt Manufacturing	SPEEDBALL REDUCER #2		*
CERAMICS, SPECIALTY PRODUCTS			
American Art Clay	AMACO AMACOTE		*
American Art Clay	AMACO ENAMELING OIL		*
American Art Clay	AMACO GUM SOLUTION		*
American Art Clay	AMACO PLASTER SEPARATOR		*
Ceramichrome, Inc.	BRUSH 'N BLEND		*
Ceramichrome, Inc.	BRUSH-ON SEALER		*
Ceramichrome, Inc.	CLAY CARVE		*
Ceramichrome, Inc.	DECO-WEB		*
Ceramichrome, Inc.	DRAPE		*
Ceramichrome, Inc.	GLAZE CONDITIONER		*
Ceramichrome, Inc.	LIQUID KILN WASH		*
Ceramichrome, Inc.	LIQUID MENDER		*
Ceramichrome, Inc.	MEDIA		*
Ceramichrome, Inc.	PLASTICIZER		*
CERAMICS, SPECIALTY PRODUCTS (Continued)			
Ceramichrome, Inc.	STAIN MEDIA		*
Ceramichrome, Inc.	THIXENER		*
Ceramichrome, Inc.	TRANSFER-IT		*
Ceramichrome, Inc.	WAX-TEX		*
Gare, Inc.	DRIPPIT		*
Gare, Inc.	FINGER MINI-METALLICS		*
Gare, Inc.	FIXALL		*
Gare, Inc.	HI-LO		*
Gare, Inc.	MIXIT		*
Gare, Inc.	NO FIRE SNOW		*
Gare, Inc.	PORCELAIN PROP		*
Gare, Inc.	SHADE-IT		*
Gare, Inc.	SOFT TOUCH PASTELS		*
Gare, Inc.	WAX RESIST		*
Mayco Colors	BLUE LACE MENDER		*
Mayco Colors	KLAY KLUTCH		*
Mayco Colors	MAYCO MASK		*
Mayco Colors	MAYCO MEDIA		*
Mayco Colors	TEXTURE POWDER		*
Mayco Colors	WAX RESIST		*
CHALKS			
Charcoal			
Dick Blick Co.	DICK BLICK		*
Extruded Colored (For Chalkboard)			
Binney & Smith	CRAYOLA KLEERWAE	*	
Binney & Smith	CRAYOLA SANIGENE	*	
Dixon Ticonderoga	HYGA-COLOR	*	
Sargent Art	SARGENT	*	
Weber Costello	OMEGA	*	
Extruded Sightsaving (For Chalkboard)			
Binney & Smith	CRAYOLA ANTI-DUST	*	
Binney & Smith	CRAYOLA E-Z-SYTE	*	
Binney & Smith	CRAYOLA SANIGENE	*	
Dixon Ticonderoga	FORSYTHE	*	
Dixon Ticonderoga	VELVATEX	*	
Weber Costello	ALPHASITE	*	
Extruded White (For Chalkboard)			
Binney & Smith	CRAYOLA-AN-DU-SEPTIC		*
Binney & Smith	CRAYOLA ANTI-DUST	*	
Binney & Smith	CRAYOLA SANIGENE	*	
Dixon Ticonderoga	DOVERCLIFF		*
Dixon Ticonderoga	HYGIEIA	*	
Weber Costello	ALPHA	*	
Weber Costello	WEBCO		*
Extruded Colored (For Paper and Crafts)			
Binney & Smith	CRAYOLA COLORED ART	*	
Dixon Ticonderoga	PRANG PASTELLO	*	
Dixon Ticonderoga	PRANG POSTER PASTELLO	*	
Sargent Art	SARGENT	*	
Weber Costello	ALPHACOLOR	*	
Molded Colored (For Chalkboard)			
Binney & Smith	CRAYOLA COLORED PROJECTION CHALK		*

PRODUCTS AND MANUFACTURERS	BRAND NAMES	CP SEAL	AP SEAL
CHALKS (Continued)			
Molded White (For Chalkboard)			
Avalon Industries	AVALON NU-CHALK		*
Binney & Smith	CRAYOLA	*	
Binney & Smith	CRAYOLA ENAMELED	*	
Binney & Smith	CRAYOLA SWAN		*
Dixon Ticonderoga	COLORART		*
Dixon Ticonderoga	WALTHAM	*	
Molded Colored (For Paper and Crafts)			
Avalon Industries	AVALON NU-CHALK		*
Binney & Smith	CRAYOLA COLORED DRAWING	*	
Binney & Smith	CRAYOLA COLORED POSTER	*	
Binney & Smith	CRAYOLA COLOREX		*
Binney & Smith	CRAYOLA GOODHUE	*	
Dixon Ticonderoga	AMBRITE	*	
Dixon Ticonderoga	EXCELLO SQUARES	*	
Dixon Ticonderoga	FREART	*	
Dixon Ticonderoga	LECTURERS	*	
Dixon Ticonderoga	PRANG COLOR CHALK		*
Dixon Ticonderoga	PRANG FLUORESCENT	*	
Dixon Ticonderoga	PRANG LECTURERS	*	
CLAYS			
Modeling (Permanently Plastic, Non-Hardening)			
American Art Clay	AMACO PLAST-I-CLAY		*
American Art Clay	PERMOPLAST	*	
Avalon Industries	COLOR CRAFT	*	
Binney & Smith	CLAY-GO		*
Binney & Smith	CLAYOLA	*	
Binney & Smith	CLAYTIME CLAY		*
Dixon Ticonderoga	PRANG	*	
Leisure Craft	LEISURE CLAY	*	
Modeling Dough			
American Art Clay	AMACO	*	
American Art Clay	SUPER DOUGH	*	
Papier Mache			
American Art Clay	CLAYCRETE	*	
Powdered Sculpting & Modeling Media			
American Art Clay	SCULPTAMOLD	*	
Self-Hardening			
American Art Clay	AMACO MARBLE		*
American Art Clay	AMACO MEXICAN POTTERY		*
Produits Chimiques	DARMI	*	
Ceramic			
American Art Clay	AMACO BUFF FIRING #46		*
American Art Clay	AMACO INDIAN RED #67		*
American Art Clay	AMACO TERRA COTTA #77		*
American Art Clay	AMACO MOIST		*
American Art Clay	AMACO NEVO (RED)		*
Gare, Inc.	PORCELAIN		*
Gare, Inc.	STONEWARE		*
Ceramic Casting Slip			
Ceramichrome, Inc.	PORCELAIN CASTING SLIP		*
Gare, Inc.	SLIP		*
CRAYONS			
Hard Molded			
Binney & Smith	ARTISTA II	*	
Molded			
Avalon Industries	COLOR CRAFT	*	
Binney & Smith	CRAYOLA	*	
Binney & Smith	CRAYOLA EASY OFF		*
Binney & Smith	CRAYOLET		*
Binney & Smith	PEACOCK		*
Binney & Smith	SO-BIG CRAYONS	*	
Dixon Ticonderoga	AMERICAN CRAYON	*	
Dixon Ticonderoga	COLORART		*
Dixon Ticonderoga	PRANG	*	

PRODUCTS AND MANUFACTURERS	BRAND NAMES	CP SEAL	AP SEAL
Molded (Continued)			
Dixon Ticonderoga	PRANG WIPE-OFF WASH-OFF CRAYONS	*	
J. L. Hammett Co.	ART UTILITY	*	
Sargent Art	SARGENT	*	
Oil Pastels			
Dixon Ticonderoga	SKETCHO	*	
Pressed			
Binney & Smith	PERMA	*	
Dixon Ticonderoga	COLOR CLASSICS	*	*
Dixon Ticonderoga	CRAYOGRAPH	*	
Dixon Ticonderoga	KANTROLL	*	
Dixon Ticonderoga	KINDOGRAPH	*	
J. L. Hammett Co.	ART UTILITY	*	*
Sargent Art	SARGENT	*	
Water Color			
Dixon Ticonderoga	PRANG PAYONS	*	
Weber Costello	ALPHACOLOR	*	
Winsor & Newton	REEVES PAINTSTIX	*	
DRAWING & LETTERING INKS & MEDIUMS			
Non-Waterproof			
Hunt Manufacturing	OSMIROID #		*
Hunt Manufacturing	SPEEDBALL		*
Technical			
Hunt Manufacturing	SPEEDBALL TECHNICAL BLACK		*
Steig Products	FW WHITE TECHNICAL		*
Steig Products	PEN-OPAKE TECHNICAL WHITE		*
Waterproof			
Hunt Manufacturing	SPEEDBALL BLACK		*
Hunt Manufacturing	SPEEDBALL PIGMENTED		*
Hunt Manufacturing	SPEEDBALL SUPER BLACK INDIA		*
Martin/F. Weber Co.	WEBER SEPIA		*
Steig Products	CALLI BLACK		*
Steig Products	CALLI CALLIGRAPHIC		*
Steig Products	FW INDIA		*
Steig Products	FW WATERPROOF		*
Steig Products	LUMA PEARLESCENT		*
Steig Products	RE-WHITE CORRECTION FLUID		*
Steig Products	TRUE FLOW INDIA		*
ETCHING INKS & MEDIUMS			
Grounds			
Graphic Chemical&Ink	GRAPHIC HARD TRANSPARENT		*
Graphic Chemical&Ink	GRAPHIC SOFT TRANSPARENT		*
Inks			
Graphic Chemical&Ink	GRAPHIC		*
Martin/F. Weber Co.	WEBER		*
Daniel Smith, Inc.	DANIEL SMITH, INC. #		*
Mediums			
Graphic Chemical&Ink	GRAPHIC SURESET		*
GLAZES, UNDERGLAZES & OVERGLAZES (CERAMIC)			
Glazes			
American Art Clay	AMACO ALLIGATOR #		*
American Art Clay	AMACO CRYSTALTEX #		*
American Art Clay	AMACO ENGOBES #		*
American Art Clay	AMACO F SERIES		*
American Art Clay	AMACO HIGH FIRE #		*
American Art Clay	AMACO LOW FIRE CRACKLE #		*
American Art Clay	AMACO MATT #		*
American Art Clay	AMACO OPALESCENT #		*
Ceramichrome, Inc.	ART #		*
Ceramichrome, Inc.	GLOSS #		*
Ceramichrome, Inc.	KRACKLE #		*

Some products in this line do not bear the CP or AP Seal.

PRODUCTS AND MANUFACTURERS	BRAND NAMES	CP SEAL	AP SEAL
Ceramic Stains, Water Base (Continued)			
Ceramichrome, Inc.	BISK-CHROME PEARL		•
Ceramichrome, Inc.	BISK-CHROME TRANSLUCENT		•
Ceramichrome, Inc.	OPAQUE ACRYLICS		•
Ceramichrome, Inc.	SOFTEE STAINS		•
Duncan Enterprises	LIQUID PEARLS		•
Gare, Inc.	BISQUE		•
Gare, Inc.	BISQUE METALLICS		•
Gare, Inc.	BISQUE PEARLS		•
Gare, Inc.	GARE STROKES		•
Gare, Inc.	GARE-TIQUES		•
Mayco Colors	FINAL TINT ◊		•
Mayco Colors	LIQUID METALLICS ◊		•
Mayco Colors	OPAQUES		•
Mayco Colors	PEARLS		•
Mayco Colors	WATERBASE TRANSLUCENTS		•
Mayco Colors	WOODGRAIN		•
Finger Paint, Dry			
Binney & Smith	CRAYOLA	•	
Finger Paint, Liquid			
Avalon Industries	COLOR CRAFT	•	
Binney & Smith	CRAYOLA	•	
Dick Blick Co.	STROKEMASTER	•	
Dixon Ticonderoga	PRANG	•	
J. L. Hammett Co.	ART UTILITY	•	
Palmer Paint	PALMER	•	
Rich Art Color Co.	RICH ART	•	
Sargent Art	SARGENT	•	
Weber Costello	ALPHACOLOR	•	
Oils			
Binney & Smith	LIQUITEX		•
Binney & Smith	LIQUITEX TEXTURED WHITE UNDERPAINT		•
Duro Art	DURO		•
Hunt Manufacturing	SPEEDBALL		•
Martin/F. Weber Co.	MISTY COLOR		•
Martin/F. Weber Co.	PERMALBA		•
Utrecht Mfg. Co.	UTRECHT ◊		•
[illegible]	BOCOUR BELLINI ◊		•
Tempera, Cake			
Binney & Smith	CRAYOLA	•	
Dixon Ticonderoga	PRANG	•	
Weber Costello	ALPHACOLOR	•	
Winsor & Newton	REEVES TEMPERABLOCK	•	
Tempera, Liquid			
Avalon Industries	COLOR CRAFT	•	
Avalon Industries	SPECTRUM		•
Binney & Smith	ARTISTA II	•	
Binney & Smith	CRAYOLA	•	
Binney & Smith	CRAYOLA ARTISTA	•	
Binney & Smith	CRAYOLA FLUORESCENT	•	
Binney & Smith	TEM-PRA-TONE		•
Dick Blick Co.	BLICK CITY	•	
Dick Blick Co.	STROKEMASTER	•	
Chroma Acrylics	CHROMACRYL TEMPRA I	•	
Chroma Acrylics	CHROMACRYL TEMPRA II	•	
H. S. Crocker Co.	SIERRA	•	
Dixon Ticonderoga	AMERICAN CRAYON	•	
Dixon Ticonderoga	COLORART		•
Dixon Ticonderoga	PRANG	•	
J. L. Hammett Co.	ART UTILITY	•	
J. L. Hammett Co.	HAMMETT SCHOOL TEMPERA	•	
Leisure Craft	LEISURE TONE	•	
Palmer Paint	LIQUID TEMPRA	•	
Palmer Paint	ULTRA TEMPRA	•	
Rich Art Color Co.	LIQ FRESCO/RICH GEL	•	
Rich Art Color Co.	RICH ART SCHOOL	•	
Sargent Art	GOTHIC		•
Sargent Art	SARGENT	•	
Sax Arts & Crafts	VERSATEMP	•	
Utrecht Mfg. Co.	UTRECHT		•
Weber Costello	ALPHABRITE	•	
Weber Costello	ALPHACOLOR	•	
Weber Costello	WEBCO		•

PRODUCTS AND MANUFACTURERS	BRAND NAMES	CP SEAL	AP SEAL
Tempera, Powder			
Avalon Industries	COLOR CRAFT	•	
Avalon Industries	SPECTRUM		•
Binney & Smith	ARTISTA II	•	
Binney & Smith	CRAYOLA	•	
Binney & Smith	CRAYOLA ARTISTA	•	
Dick Blick Co.	BLICK CITY	•	
Dixon Ticonderoga	AMERICAN CRAYON	•	
Dixon Ticonderoga	COLORART		•
Dixon Ticonderoga	PRANG	•	
J. L. Hammett Co.	ART UTILITY	•	
Palmer Paint	PALMER DRY TEMPRA	•	
Rich Art Color Co.	FRESCO	•	
Sargent Art	GOTHIC		•
Sargent Art	SARGENT	•	
Weber Costello	ALPHABRITE	•	
Weber Costello	WEBCO		•
Water Colors, Dry Pan			
Winsor & Newton	REEVES WATER COLOUR TABLETS	•	
Water Colors, Semi-Moist			
Avalon Industries	COLOR CRAFT	•	
Binney & Smith	ARTISTA II/PEACOCK	•	
Binney & Smith	CRAYOLA	•	
Binney & Smith (Canada)	CRAYOLA		•
Binney & Smith	PLAYTIME		•
Dixon Ticonderoga	AMERICAN CRAYON	•	
Dixon Ticonderoga	COLORART		•
Dixon Ticonderoga	KOPY KAT		•
Dixon Ticonderoga	PRANG	•	
J. L. Hammett Co.	ART UTILITY	•	
Sargent Art	SARGENT (22 series)	•	
Sargent Art	SARGENT (66 series)		•
Steig Products	INKABLE WHITE		•
Steig Products	LUMA BRILLIANT CONCENTRATED		•
Steig Products	LUMA SOLAR CHROMATIC		•
Steig Products	LUMA WHITE HIGH OPACITY		•
Steig Products	PRO BLACK		•
Steig Products	PRO WHITE RETOUCH WHITE		•
Steig Products	Q WHITE RETOUCH WHITE		-
Steig Products	STEIG WHITE		•
Water Colors, Tube			
Binney & Smith	LIQUITEX ◊		•
Hunt Manufacturing	SPEEDBALL PROFESSIONAL		•
Martin/F. Weber Co.	WEBER		•
Utrecht Mfg. Co.	UTRECHT ◊		•
PHOTO EMULSIONS			
Hunt Manufacturing	SPEEDBALL (BLUE)		•
RESTORATION/CONSERVATION PRODUCTS			
Martin/F. Weber Co.	WEBER ADHESIVE PREPARATION		•
SCREEN PRINTING INKS & MEDIUMS			
Acrylic			
Hunt Manufacturing	SPEEDBALL PERMANENT		•
Textile			
Hunt Manufacturing	SPEEDBALL NO-HEAT		•
Hunt Manufacturing	SPEEDBALL TEXTILE WATER-SOLUBLE		•
Water Soluble			
Hunt Manufacturing	SPEEDBALL WATER-SOLUBLE		•
Accessories, Water Base			
Hunt Manufacturing	SPEEDBALL DRAWING FLUID (BLUE)		•
Hunt Manufacturing	SPEEDBALL SCREEN FILLERS		•

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